

A new genus and species of Anomaloninae (Hymenoptera, Ichneumonidae) from China

Mao-Ling Sheng^{1,†}, Klaus Schönitzer^{2,‡}, Shu-Ping Sun^{1,§}

1 General Station of Forest Pest Management, State Forestry Administration, Shenyang, Liaoning, 110034, China **2** Zoologische Staatssammlung München, München, Germany

† [urn:lsid:zoobank.org:author:3C0EBDB7-26F7-469B-8DB1-5C7B1C6D9B89](https://zoobank.org/urn:lsid:zoobank.org:author:3C0EBDB7-26F7-469B-8DB1-5C7B1C6D9B89)

‡ [urn:lsid:zoobank.org:author:61913B06-359F-4681-A889-F98613B6A5AF](https://zoobank.org/urn:lsid:zoobank.org:author:61913B06-359F-4681-A889-F98613B6A5AF)

§ [urn:lsid:zoobank.org:author:974C0354-6118-4EA9-890F-EF5ECE8F257A](https://zoobank.org/urn:lsid:zoobank.org:author:974C0354-6118-4EA9-890F-EF5ECE8F257A)

Corresponding author: Mao-Ling Sheng (shengmaoling@163.com)

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Abstract

Elaticarina Sheng, **gen. n.** and *Elaticarina recava* Sheng, **sp.n.**, belonging to the tribe Gravenhorstiini of subfamily Anomaloninae (Hymenoptera, Ichneumonidae), collected in Jiangxi Province, China, are described. The new genus is placed within existing keys to genera.

Keywords

Gravenhorstiini, new genus, new species, taxonomy, China

Introduction

Townes (1971), in his generic revision of the Ichneumonidae, treated the Anomaloninae as comprising four tribes, Anomalonini, Gravenhorstiini, Podogastrini and Theriini. Gauld (1976), in his generic revision, combined the four tribes of Townes (1971) into two, Therionini (= Gravenhorstiini) and Anomalonini. Dasch (1984) subdivided the Anomaloninae into two subfamilies, the Anomaloninae (= tribe Anomalonini *sensu* Gauld, 1976) and the Theriinae (= tribe Therionini *sensu*

Gauld, 1976). Two tribes of Anomaloninae, Gravenhorstiini and Anomalonini were accepted by Gauld et al. (1997). In this paper, the suggestions of Gauld et al. (1997) and Yu et al. (2005) are followed.

The tribe Gravenhorstiini comprises 41 genera (Yu et al. 2005), of which thirteen genera of Gravenhorstiini have been reported in China (Yu et al. 2005; Sheng and Sun 2009). The status of the genera and tribes were elucidated by Townes (1971) and Gauld (1976).

In the last four years the authors have been exploring in six National Natural Reserves: Wuyishan, Lushan, Matoushan, Jiulianshan, Guanshan and Jinggangshan, and mountains in Quannan County in Jiangxi Province, situated in the northern border of the Oriental part of China. New discoveries have been reported (Sheng and Sun 2009; Sheng and Sun 2010a, b; Sheng and Broad 2011; Sheng and Sun 2011; Sheng et al. 2012). Large numbers of anomalonines have been collected there and will be reported successively.

One species, collected in Matoushan National Natural Reserve, Zixi County, and Wuyishan National Natural Reserve, Yanshan County, Jiangxi Province, China, is distinct within the existing phylogenetic framework for the tribe Gravenhorstiini because of its unique combination of characters. For example: apical margin of clypeus evenly convex, without a tooth; lower end of occipital carina joining hypostomal carina distinctly above base of mandible; lower anterior margin of pronotum (Figure 7) symmetrical, rounded, without a tooth or angulation; tarsal claws simple, or fore and middle claws indistinctly pectinate at extreme base; fore wing (Figure 8) vein 2rs-m far distal to 2m-cu, distance between them approximately as long as 2rs-m; fore wing vein 1-Cu (Figure 8) approximately 0.5 times as long as 1m-cu+2-Rs+M; middle tibia with two spurs; epipleuron of tergum 3 not separated by a crease; ovipositor sheath approximately 0.5 times as long as apical depth of metasoma.

This species also exhibits some distinctive autapomorphic characters which are not found in any described genus of the Gravenhorstiini. For example: upper margin of face (Figure 2) extending upwards and partly covering antennal sockets; lower portion of occipital carina (Figure 3) widely and flakily expanded; frons (Figure 4) divided into two portions. Accordingly, based on this combination of character states that preclude the placement of this species in a described genus, we believe this is indeed a previously undescribed genus.

Materials and methods

Specimens were collected using entomological nets in the forests of Matoushan National Natural Reserve, Zixi County and Wuyishan National Natural Reserve, Yanshan County, Jiangxi Province (CHINA). The forest of Matoushan National Natural Reserve composed of mixed deciduous angiosperms and evergreen conifers, mainly including *Castanea* spp., *Castanopsis fabri* Hance, *Cinnamomum* spp., *Quercus* spp., *Pinus massoniana* (Lamb.). The forest of Wuyishan National Natural Reserve composed of mixed deciduous angiosperms and evergreen conifers, mainly including *Castanea* spp., *Cinnamomum* spp., *Dalbergia hupeana* Hance, *Machilus* spp., *Quercus* spp., *Pinus massoniana* (Lamb.) and Bamboos.

Images of whole bodies were taken using a CANON Power Shot A650 IS. Other images were taken using a Cool SNAP 3CCD attached to a Zeiss Discovery V8 Stereomicroscope and captured with QCapture Pro version 5.1.

The morphological terminology is mostly that of Gauld (1991). Wing vein nomenclature is based on Ross (1936) and the terminology on Mason (1986, 1990).

Type specimens are deposited in the Insect Museum, General Station of Forest Pest Management, State Forestry Administration, People's Republic of China.

Taxonomy

Elticarina Sheng, gen. n.

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<http://species-id.net/wiki/Elticarina>

Type species. *Elticarina recava* Sheng, sp.n.

Etymology. The name of the new genus is based on the lower portion of the occipital carina being remarkably wide. The gender is feminine.

Description. Fore wing length about 10 to 11 mm. Eye without pubescence, inner margins of eyes distinctly convergent ventrally. Upper margin of face straight, extending upwardly and covering partly over antennal socket. Apical margin of clypeus extending forward and slightly turnup (Figure 2), without a tooth. Upper tooth of mandible distinctly longer than lower tooth. Malar space about 0.5 to 0.6 times as long as basal width of mandible. Frons (Figure 4) divided into two portions: upper portion flat, lower margin with a transverse ridge; lower portion deeply and almost vertically sunken, with a median longitudinal carina. Median portion of flagellum slightly thick. Occipital carina complete, lower portion widely and flakily expanding (Figure 3), lower end joining hypostomal carina distinctly above base of mandible. Lower anterior margin of pronotum (Figure 7) symmetrical, without a tooth or angulation. Epomia indistinct. Mesoscutum evenly convex. Notaulus weak, reaching to subposterior margin of mesoscutum. Scutellum with dorsal profile and hind oblique profile; dorsal profile flat or slightly convex; lateral carina reaching apex. Epicnemial carina almost reaching to mid-height of front margin of mesopleuron, distant from front margin. Fore wing vein (Figure 8) 1cu-a distal of 1/M, distance between them 0.6 to 0.7 times as long as 1cu-a. 2rs-m far distal of 2m-cu, distance between them approximately as long as 2rs-m. 1-Cu approximately 0.5 times as long as 1m-cu+2-Rs+M (distance between 1-Cu and 2m-cu). Hind wing vein 1-cu approximately 0.6 to 0.7 times as long as cu-a; cu-a strongly reclivous. Front coxa without surrounding carina. Middle tibia with two spurs. Claws simple, or fore and middle claws indistinctly pectinate at extreme base. Apical portion of propodeum hardly prolonged. Propodeal spiracle ellipse, situated at basal margin of propodeum. Ovipositor sheath short, 0.5 to 0.6 times as long as apical depth of metasoma. Ovipositor robust (Figure 6), weakly decurved; subapical portion somewhat swollen.

This new genus is similar to *Aphanistes* and *Habronyx* in having the lower anterior margin of the pronotum without a tooth, the posterior transverse carina of the mesosternum interrupted in front of each mid coxa, fore wing vein 1-Cu distinctly shorter than 1m-cu+2-Rs+M (distance between 1-Cu and 2m-cu), etc., but differs in a number of characters from each of them, mainly as following:

- upper margin of face extending upwardly and covering partly over antennal socket; *Aphanistes* and *Habronyx* with the face simple;
- apical margin of clypeus without a tooth; *Aphanistes* and *Habronyx* with a tooth;
- frons divided into two portions: upper portion flat; lower portion deeply and almost vertically sunken; *Aphanistes* and *Habronyx* with frons simple;
- lower portion of occipital carina widely and flakily expanded; *Aphanistes* and *Habronyx* not or slightly widened, not flakily expanded;
- lower end of occipital carina joining hypostomal carina distinctly above base of mandible; *Aphanistes* and *Habronyx* with occipital carina joining base of mandible;
- fore wing vein 2rs-m far distal to 2m-cu, distance between them approximately as long as 2rs-m; *Aphanistes* and *Habronyx* with 2rs-m basal to 2m-cu, or rarely opposite, or *Habronyx* with 2rs-m a little distal;
- fore and middle claws indistinctly pectinate at extreme base, hind claws simple; *Aphanistes* and *Habronyx* with claws mostly distinctly pectinate.

Distribution. There is a single Chinese species, described below.

In Townes' (1971) key to genera, the new genus can be inserted as follows:

- 8 Mesoscutum in profile with a distinct concavity just before its front end, so that its front end is like a small shelf. Frons usually with a median compressed tooth. Tarsal claws pectinate to the apex. Almost worldwide **3 *Aphanistes* (p.131)**
- Mesoscutum in profile with an evenly convex curve to the front end or with a slight flattening (but not a distinct concavity) just before the front end. Frons without a median compressed tooth. Tarsal claws usually not pectinate to the apex **9**
- 9 Notaulus distinct, reaching at least to center of mesoscutum. Upper end of prepectal (epicnemial) carina usually reaching above lower 0.15 of hind margin of pronotum and approaching front edge of mesopleurum (mesopleuron) **9a**
- Notaulus absent. Upper end of prepectal (epicnemial) carina not reaching lower 0.15 of hind margin of pronotum **10**

- 9a Lower portion of occipital carina widely and flakily expanded (Figure 3), lower end joining hypostomal carina distinctly above base of mandible. Apex of clypeus (Figure 2) evenly convex, without a tooth. Frons divided into two portions (Figure 4), lower potion deeply and almost vertically concave. Forewing 2rs-m far distal of 2m-cu, distance between them approximately as long as 2rs-m ***Elaticarina* Sheng, gen. n.**
- Lower portion of occipital carina not or slightly expanding, lower end joining base of mandible. Apex of clypeus with a median tooth. Frons not divided into two portions, not particularly concave. Forewing 2rs-m basal of 2m-cu, sometimes opposite or a little distal.....***Habronyx* (p.130)**

In Gauld's key to genera and subgenera (1976), the new genus can be inserted as follows:

- 20(19) Mesoscutum in profile anteriorly evenly round (Text-fig. 209); notauli entirely absent, not even represented by an area of coarse sculpture. Lower corner of pronotum simply acute (Text-fig. 204); claws of ♂ long, weakly curved, pectinate only at extreme base (Text-fig. 215–218), those of ♀ shorter, moderately curved, pectinate to, or just beyond, the centre; ♂ with apex of aedeagus with a dorsal lobe. (Cosmopolitan) **Gravenhorstia subgenus *Erigorgus* Foerster (p.60)**
- Mesoscutum in profile weakly to strongly abruptly round (Text-fig. 206); notauli present, strongly impressed, rarely quite weakly impressed but then discernible by being strongly rugose..... **20a**
- 20a Lower end of occipital carina joining hypostomal carina distinctly above base of mandible. Frons divided into two portions, lower potion deeply and almost vertically concave. Apex of clypeus (Figure 2) evenly convex, without a tooth..... ***Elaticarina* Sheng, gen. n.**
- Lower end of occipital carina joining base of mandible. Frons not divided into two portions, lower potion normal, not particularly concave. Apex of clypeus always with a median tooth **21**

In Gauld's key to genera and subgenera (1976), if *Elaticarina* specimens are run to couplet 7 (which they should not), then there are resemblances to the genus *Therion* in that the posterior transverse carina of the mesosternum is interrupted before each mid coxa and the clypeus lacks a median apical tooth. *Elaticarina* differs from *Therion* in the lower end of the occipital carina joining the hypostomal carina distinctly above the mandible base, fore wing vein 2rs-m far distal to 2m-cu, distance between them approximately as long as 2rs-m, 1-Cu approximately 0.5 times as long as 1m-cu+2-Rs+M.

***Elaticarina recava* Sheng, sp.n.**

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http://species-id.net/wiki/Elaticarina_recava

Figures 1–8

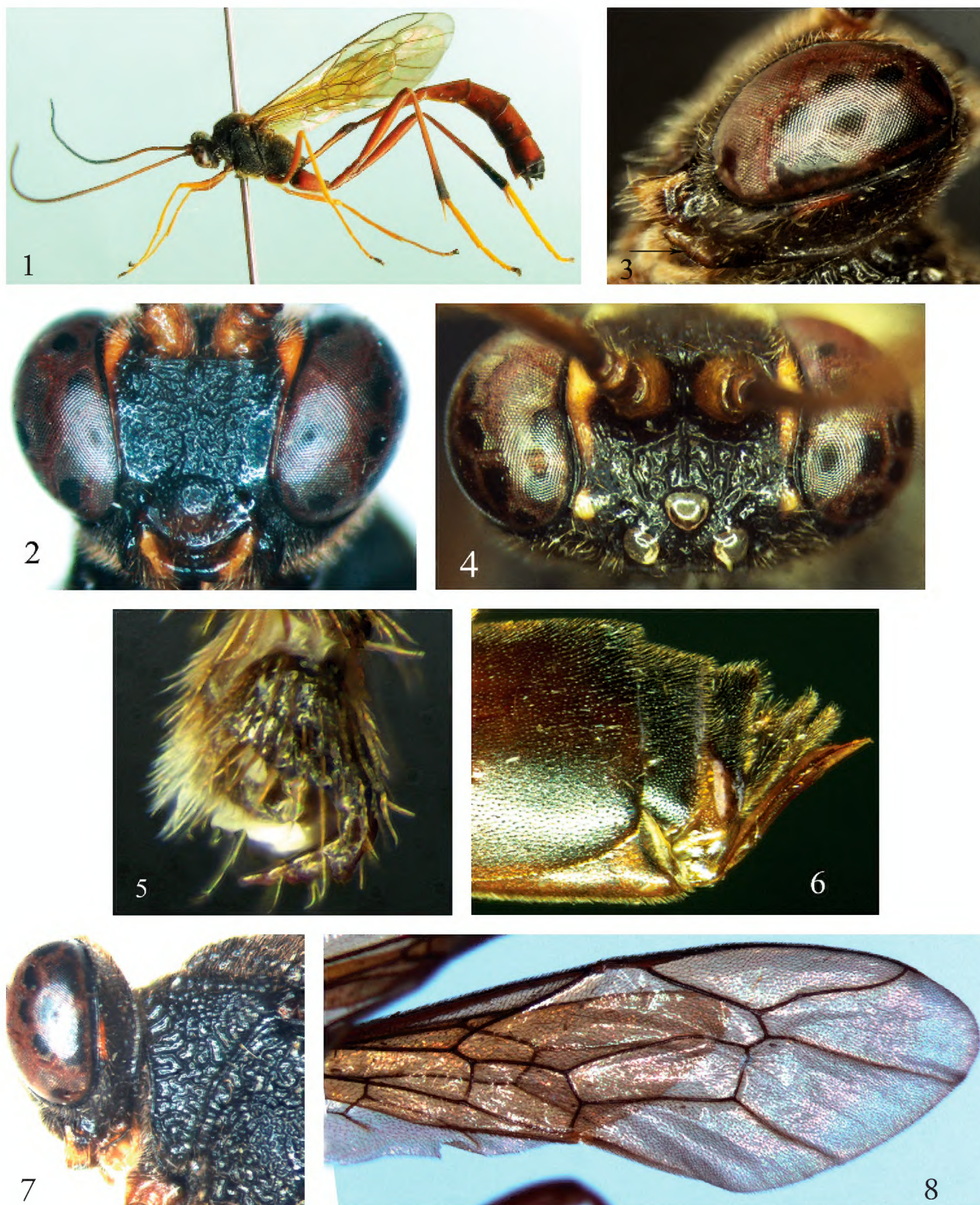
Etymology. The name of the new species is based on the lower portion of frons being deeply concave.

Type material. *Holotype*, Female, CHINA: Matoushan National Natural Reserve, 400m, Zixi County, Jiangxi Province, 8 May 2009, leg. Mei-Juan Lou. *Paratypes*: 1 female, same data as holotype except 1 May 2009. 1 female, CHINA: Wuyishan National Natural Reserve, 1160m, Yanshan County, Jiangxi Province, 15 June 2009, leg. Zhi-Yu Zhong.

Description. Female. Body length 16.0 to 18.0 mm. Fore wing length 10.5 to 11.0 mm. Ovipositor sheath length about 1.2 mm.

Head. Face approximately 1.1 times as wide as long, median portion slightly concave, with irregular wrinkles; lateral margin finely punctate; upper-lateral portion nearby antennal socket with irregular transverse wrinkles; upper margin with a small median tubercle. Clypeal suture weak. Clypeus (Figure 2) approximately 1.6 times as wide as long, evenly and evidently convex; basal portion with sparse, distinct and fine punctures; apical portion almost impunctate. Mandible short, basal portion with weak and indistinct punctures and brown hairs. Cheek slightly concave, with fine coriaceous texture. Malar space 0.48 to 0.63 times as long as basal width of mandible. Gena with distinct dense punctures and long brown hairs; straightly convergent backwardly. Vertex smooth, with fine and weak punctures. Postocellar line approximately 0.8 times as long as ocular-ocellar line. Interocellar area with wrinkles and a deep median longitudinal groove. Dorsal profile of frons rough, weakly concave centrally, with irregular wrinkles; lateral portion almost smooth. Antenna with 52 to 54 flagellomeres.

Mesosoma. Pronotum (Figure 7) rough, anterior portion with distinct transverse wrinkles, hind margin with oblique transverse wrinkles; upper-posterior portion with indistinct fine transverse wrinkles; lower portion with distinct reticulate wrinkles; subanterior margin with a strong longitudinal ridge (Figure 7). Mesoscutum with dense, indistinct and fine punctures, hind margin with fine transverse wrinkles; nearby hind margin irregularly rough. Scutellum and postscutellum with dense wrinkles. Mesopleuron rough, upper-anterior portion with fine oblique longitudinal wrinkles; lower portion with distinct reticulate wrinkles. Without speculum, the place with oblique lines. Posterior transverse carina of mesosternum not complete, broken before middle coxa. Metapleuron evidently convex, with rough and dense reticular wrinkles. Anterior portion of submetapleural carina strongly convex, posterior portion weak and indistinct. Wing (Figure 8) grey-brownish hyaline. Fore wing vein 1cu-a distal of 1/M, distance between them about 0.65 times length of 1cu-a. Vein 2-Cu approximately as long as 2cu-a. Hind wing vein cu-a strongly reclivous, 1-cu 0.6 to 0.7 times as long as cu-a. Legs comparatively slender. Hind coxa with distinct fine punctures; dorso-apical margin of first trochanter



Figures 1–8. *Elaticarina recava* Sheng, sp.n. Holotype **1** Body, lateral view **2** Head, anterior view **3** Head, lateral view **4** Frons **5** Claw **6** Apical portion of metasoma, lateral view **7** Head and pronotum, lateral view **8** Fore wing.

produced as a tooth. Fore and middle claws indistinctly pectinate at extreme base. Hind claws simple, strongly curved approximate at right-angle. Ratio of length of hind tarsomeres 10.0:3.7:2.0:1.0:1.7. Propodeum with dense and rough reticular wrinkles and a shallow median longitudinal concavity.

Metasoma. Hind portion from second tergum strongly compressed. Apical margin of first sternum reaching to level of spiracle. Second tergum approximately 1.25 times as long as first tergum, 1.9 times as long as third tergum. Ovipositor sheath approximately 0.5 times as long as apical depth of metasoma.

Color (Figure 1). Head and mesosoma black, except the following: inner orbits, median portions of gena orbits and scape yellowish brown; apical portion of pedicel, basal half of flagellum except base of first flagellomere, coxae except black bases, trochanters and femora reddish brown; apical portion of flagellum blackish brown; fore and middle tibiae and tarsi except fifth segments, brownish yellow; basal 0.7 to 0.8 of hind tibia darkish brown; tegulae blackish brown to reddish brown; median portion of mandible and hind tarsi except fifth segment, yellow. Terga, except dorsal portion of second tergum and main portions of seventh and eighth terga brownish black, reddish brown. Stigma brown. Veins brownish black.

Variation. The specimen from Wuyishan National Natural Reserve, Yanshan County, Jiangxi Province, has the fore and middle legs almost entirely yellow.

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